

Operation & Installation Guide

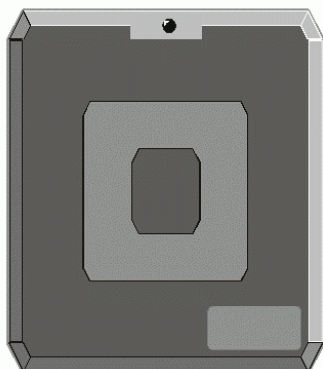


Figure 1: Low Profile
(K3001 / D8301)

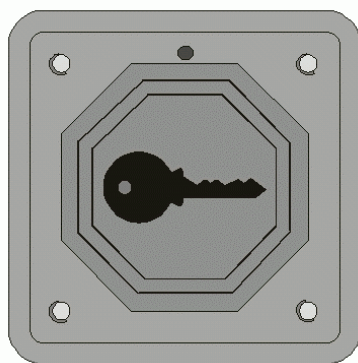


Figure 2: Vandal Resistant
(K3002 / D8302)

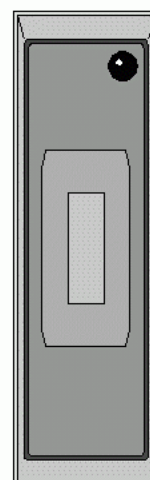


Figure 3: Mullion (K3003 / D8303)

1.0 Introduction

These readers read **KeyPAC** ID-devices including ISO thickness ID cards. They **do not** read the earlier K2000 / D8200 series ID devices. Make sure that you specify **KeyPAC** whenever you buy ID devices.

1.1 Part Numbers

K3001 / K3001W and D8301 are KeyPAC Low Profile Readers

K3002 / K3002B and D8302 are KeyPAC Vandal Resistant Readers (Stainless Steel or Brass)

K3003 / K3003W and D8303 are KeyPAC Mullion Readers

Note: The K3000 Series readers are available to Readykey Dealers only.

1.2 Compatible ID Devices

The KeyPAC range will not work with the older Readykey ID devices. The following are part codes for compatible ID devices:

Part Number	Description
K3011-10	KeyPAC ISO Thickness Card (pack of 10)
K3011M-10	KeyPAC ISO Thickness Card with Magnetic Stripe (pack of 10)
K3010-10	KeyPAC Tokens (pack of 10)
K3011WG-10 / D8339-10	KeyPAC Cards with Wiegand Stickers (pack of 10)
3010WG-10 / D8338-10	KeyPAC Tokens with Wiegand Stickers (pack of 10)

Table 1: Compatible ID Devices

Note: The K3000 Series Devices are available to Readykey Dealers only.

2.0 Overview

2.1 Description

Each reader may be mounted internally or externally without any special weather protection, however the Vandal Resistant Reader is better suited to outdoor use.

Other important features include:

- Suitable for mounting on metallic and non-metallic surfaces
- Integral red/green LED
- Tamper protection
- Low idle current consumption
- Integral sounder (not Vandal Resistant)

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K3000 / D8300 Series

- Output format selection. Formats available are Readykey format (default), Wiegand (26 and 34bit), Magstripe and Barcode

2.2 Specifications

Appropriate Reading Range for ISO Thickness Card	K3001 Low Profile	0 in. – 4 in. (0 cm – 10 cm)
	K3002 Mullion	0 in. – 3 in. (0 cm – 7.6 cm)
	K3003 Vandal Resistant	0 in. – 2 in. (0 cm – 5.1 cm)
	These ranges will reduce if the readers are mounted on surfaces containing metal or if they are near local sources of electrical noise.	
Power Requirements	Mullion	12 VDC (nominal), < 40 mA; Tolerance +10.5 V to +20 V
	Low Profile and Vandal Resistant	12 VDC (nominal), < 85 mA; Tolerance +10.5 V to +20 V
Environmental	Operating	-31°F to + 140°F (-35 °C to + 60°C); 0-90% RH at 86°F±5°F (30°C ±2°C) for 24 hrs
	Storage	-31°F to +176°F (-35°C to +80°C)
	Ingress Protection	Sealed to IP 66

Table 2: K3000 / D8300 Series Specifications

3.0 Installation

3.1 Unpacking

Check that all the parts are supplied with your reader. If anything is missing or damaged, contact your suppliers immediately. The readers are each supplied with the following:

Low Profile	Mullion	Vandal Resistant
Two screws	Two 1" screws	Four Screws
Snap fit decor cover	Snap fit decor cover	Label
Label	Label	Ten cable crimps
Ten cable crimps	Ten cable crimps	MOV
MOV	MOV	

Table 3: K3000 / D8300 Series Supplied Parts

3.2 Output Format Selection

You can set the output format before installing the reader or at any point before power is connected. The instructions given here do not contradict those in the wiring section they are only necessary for programming the output format before the reader is wired as normal.

The default output format for this unit is Readykey. To set the reader to other output formats:



Disconnect the power before starting. Failure to do so may damage the unit.

Start with all the wires disconnected from the reader.

1. To select the output format twist together the wires as shown in the following table:

Output Format	Brown to...	Yellow to...	# of Flashes on power up
Normal power up	all separate		
Readykey (default)	white	-	0
Wiegand 26-bit	green	-	1
Wiegand 34-bit	white	green	2
Magstripe	-	green	4
Barcode	green	white	5

Table 4: Output Format Selection

2. Separate the other wires and keep them separate. We suggest you use insulation tape.
3. Connect the power for 2 seconds. Connect the black wire to GND (ground) and the red to power +12 V (10.5 V to 20 V).

Note: At this stage there will be no **indication** of successful format change.

4. Disconnect the power.
5. Untwist the wires and keep them separate, again we suggest you use insulation tape.

6. To check that you were successful, reconnect the power using the red and black wires (as above) and count the number of green LED flashes. The format can be determined according to the table above.

3.3 MOV - Lock Suppression

A metal-oxide-varistor (MOV) is provided with each KeyPAC reader. This device prevents back EMF (high voltage 'spikes') being returned from the electric lock to the unit. High voltage spikes can cause severe damage over a period of time, and erratic operation of the system if not controlled.



Failure to fit the MOV at the lock will result in early failure of the unit. It will also invalidate the warranty.

The MOV (A) should be fitted across the power terminals of the lock (B).

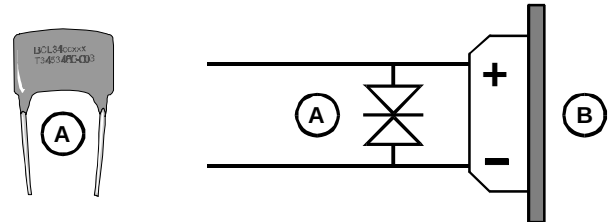


Figure 4: MOV Installation

3.4 Before Installing the Reader

Be aware of the following when you choose the locations of your readers:

- The cable distance from controller to reader should never exceed 3,000 feet (1000m) (with appropriate cable). Also consider the maximum distance between the controller and the lock.
- If you use a Request To Exit (RTE) switch, route the wiring so that it is not accessible if the reader is removed.
- Ensure that the LED is visible to the keyholder.
- The best place for a reader is next to the door on the unhinged side at roughly the same height as the door handle. Check local regulations for ADA compliance.
- Readers may be located inside or outside.
- Leave enough room behind the reader for the flying lead.
- Readers can be mounted behind a non-metallic material, such as glass, plastic or wood without affecting their reading range.
- There should be a minimum 3 ft (1m) distance between readers (this includes in and out readers on opposite sides of a door).
- Readers can read in the same way from their back as they do from their front. Because of this, ID devices may work from the other side of the wall on which the reader is mounted.
- Avoid mounting the reader in direct sunlight.

3.5 Installing the Reader

1. Make sure the reader cable is **not** connected to the controller. Route the flying lead behind the reader and connect it using the crimp connectors supplied. Wire the cable as described in the Wiring section later in this manual.
2. If the connections are in a location that may be wet or damp, then protect the connectors with a sealing compound, or use weatherproof crimps.
3. Using appropriate fixings, such as wall plugs, for the surface you are mounting it on, fix the reader to a flat surface using the screws provided. Install the reader onto a flat and even a surface as possible, as this will reduce the possibility of it being levered from a wall.
4. For the K3001 and D8301: the two holes are 2.4 in (60 mm) apart. Use the round hole first, then the oval hole to ensure the reader is straight. Once the reader is mounted in place then the snap-fit décor cover can be snapped into place. The hole in the cover should line up with the LED. Place the label on the front of the reader.
5. For the K3002 and D8302 Vandal resistant readers, apply a silicone sealant to any gaps behind the reader to protect against moisture if the reader is mounted outside. Use the Vandal Resistant screws provided or other suitable fasteners. The LED should be at the top.

3.6 Removing the Reader

The K3001 and D8301 readers can be removed by placing a small flat-bladed screwdriver into the apertures at the edges of the snap-fit cover. Take care not to damage the reader or cover.

4.0 Wiring

All connections are made to a 3 ft (1 m) flying lead. 10 cable crimps are included for joining connectors to the cable from the controlling system. Cable gauge depends on distance from the door controller to reader. When using 0.22 mm² (24 AWG) cable, you should twist the wires together and double them over before inserting them in the crimp.

Flying Lead	Readykey	Wiegand Controller	Magstripe Controller	Barcode Controller
Black	GND			
White	SIG	DATA1	DATA	SIGNAL
Green	N/A	DATA0	CLK	Not Connected (Crimp)
Brown	VCA / LED – GND to activate			
Yellow	Sounder – GND to activate			
Red	12 VDC (+10.5 to +20 V)			
Blue	Tamper	-V		Not Connected (Crimp)

Table 5: Wiring Connections

4.1 Wire Gauges and Cable Lengths (Readykey Equipment Only)

Cable Gauge			Distance (reader to door controller)
7/0.2	0.22 mm ²	24 AWG (0.6 mm)	Up to 750 feet (250 meters)
16/0.2	0.5 mm ²	20 AWG (1.0 mm)	Up to 1500 feet (500 meters)
32/0.2	1.0 mm ²	18 AWG (1.2 mm)	Up to 3000 feet (1000 meters)

Table 6: Readykey Wire Gauges and Lengths

4.2 Standard Wiring Diagram for Readykey Controllers (only)

Door controllers to KeyPAC readers. Always refer to your controller manual.

Note: The Readykey K2200 series controllers allow the connection of two readers to each channel, only if both readers' outputs are set to Readykey output format.

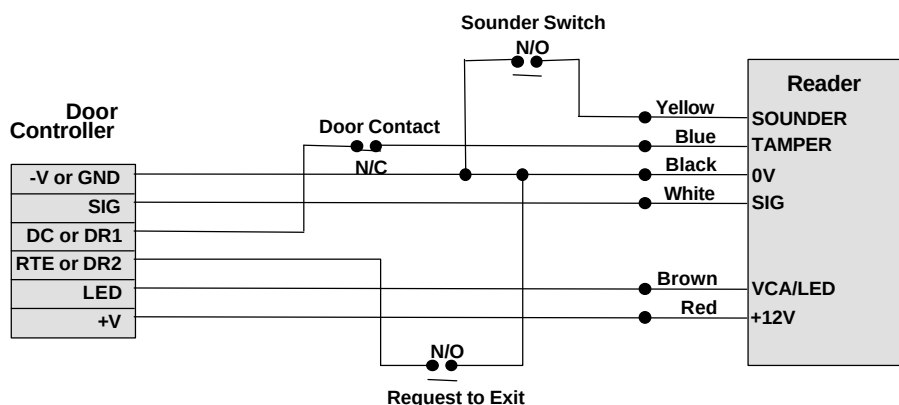


Figure 5: Standard Wiring Diagram

5.0 Operation

The reader LED will normally be red when the door is locked. When a key is presented within range of the reader, and the key is valid for that door at that time, the LED will go green and the lock will release. The LED will stay green while the lock is released.

5.1 Tamper Protection (Readykey format)

To ensure complete tamper protection the DR1 or DC terminal of the door controller should be connected to the blue lead of the reader. If a door contact is being used then this should be connected in series with DR1/DC and the blue lead. See the door controller installation manual for full details of how to set up tamper protection and alarm monitoring.

5.2 Sounder Operation (not Vandal Resistant)

The internal sounder will operate if the yellow lead is grounded. The sounder will continue until the connection to ground is broken. A relay, such as provided on the Readykey K2200 series controllers, may be used to provide this operation under various conditions, e.g. Door Left Open.

Note: The yellow wire is retained for the vandal resistant reader to allow the installer to set the output format. ID devices will not be read while the sounder is operating.